

**SLOPE PREDICTIVE CONTROL AND DIGITAL PID CONTROL****Abstract of the Disclosure**

[0053] The present invention provides an airflow control loop that uses averaged airflow measurements without the problems that are normally encountered with averaging measurements, such as the delay introduced into the airflow control loop. This is accomplished, in the present invention, through a predictive control scheme. The predictive control scheme of the airflow control loop calculates the damper sensitivity, calculates the damper runtime needed to achieve setpoint, and then runs the damper for the determined period of time. In addition to the unique airflow control loop used to maintain the constant airflow into the room, the present invention also implements a digital form of proportional, integral, and derivative (PID) control to maintain the room temperature. The digital form of PID control uses non-linear gains which vary according to how far the measured temperature is from setpoint.

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